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3,3,6-Trimethyl-2-chlorocyclohexeno[1,2-d--1,2-oxaphosphol-4-ene-2-oxide as a convenient precursor for the synthesis of dimephosphone analogs

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Abstract

© 2017, Pleiades Publishing, Ltd.A convenient approach to the synthesis of 3,3,6-trimethyl-2-chlorocyclohexeno[1,2-d]-1,2-oxaphosphol-3-ene-2-oxide was developed based on the reaction of the naturally occurring terpenoketone pulegone with methyl dichlorophosphite. Treatment of oxaphospholene-2-oxide with water or ethanol yielded γ-phosphoryl ketones, dimephosphone analogs. The studied hydrolysis and alcoholysis processes differ in stereoselectivity.

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Keywords

methyl dichlorophosphite, oxaphospholene, oxoalkylphosphonates, phosphoryl ketones, phosphorylation, pulegone

References

[1] Vizel, A.O. and Garaev, R.S., Dimefosfon. Novyi aspect farmakologicheskogo podkhoda k soedineniyam fosfora (Dimephosphone. A New Aspect of the Pharmacological Approach to the Phosphorus Compounds), Kazan Pechat'-Servis-XXI-vek, 2011.

[2] RU Patent 2374260, 2009; Byull. Izobret., 2009, no. 23.

[3] Mironov, V.F., Buzykin, B.I., Garaev, R.S., Tatarinov, D.A., Kashapov, L.R., Chestnova, R.V., Nabiullin, V.N., Il'yasov, A.V., and Zobova, V.V., Russ. Chem. Bull., 2014, vol. 63, no. 9, p. 2114. doi 10.1007/s11172-014-0708-2

[4] Biochemistry of Plant Secondary Metabolism, Wink, M., Oxford: Wiley-Blackwell, 2010, vol. 40. doi 10.1002/9781444320503

[5] Huang, M., Lu, J.J., Huang, M.Q., Bao, J.L., Chen, X.P., and Wang, Y.T., Expert Opin. Invest. Drugs, 2012, vol. 21, no. 12, p. 1801. doi 10.1517/13543784.2012.727395

[6] Sansinenea, E. and Ortiz, A., Curr. Org. Synth., 2014, vol. 11, no. 4, p. 545. doi 10.2174/15701794116661403211806 29

[7] Horsman, G.P. and Zechel, D.L., Chem. Rev., 2016, doi 10.1021/acs.chemrev.6b00536